

LISTING OF CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application.

1. (currently amended) Apparatus for the dynamic stabilization of bones or bone fragments, in particular spinal vertebrae comprising a longitudinal support, the longitudinal support having a first end, a second end, and a uniform stiffness extending from the first end to the second end, the longitudinal support being sized and configured to that can be fixed to the vertebrae, the longitudinal support is plastically deformable between from a first stable shape state and into a second stable shape state by application of a prespecified bending force, the longitudinal support remaining flexible within predetermined limits while in the first and second stable shape states.
2. (currently amended) The apparatus of claim 1 wherein the longitudinal support is elastically deflectable by an angle of 5° to 12° over a length corresponding to the spacing of two adjacent vertebrae ~~or about 2 to 5 cm when clamped at one end while in the first or second stable shape state.~~
3. (currently amended) The apparatus of claim 1 wherein the longitudinal support is stable and ~~unyielding~~ with respect to anatomically usual longitudinal shear forces and with respect to anatomically usual transverse shear forces.
4. (previously presented) The apparatus of claim 1 wherein the longitudinal support is substantially stable when subjected to anatomically usual torsion.

5. (previously presented) The apparatus of claim 1 wherein the longitudinal support is in the shape of a flat band or strip.
6. (previously presented) The apparatus of claim 1 wherein the longitudinal support is rotationally symmetrical.
7. (previously presented) The apparatus of claim 1 wherein the longitudinal support is hollow.
8. (currently amended) The apparatus of claim 1 wherein the longitudinal support comprises a plastically deformable core made of metal encased in a human-tissue-compatible plastic member that provides flexibility within a stable shape state.
9. (currently amended) The apparatus of claim 1 wherein the longitudinal support is dimensioned such that within the predetermined limits its surface stress is always below a ~~the~~ dynamic breaking stress.
10. (currently amended) The apparatus of claim 8 wherein both the core and the plastic member ~~encasing~~ are dimensioned such that within the predetermined limits the surface stress of both the core and the plastic member ~~encasing~~ is always below a ~~the~~ respective dynamic breaking stress.
11. (previously presented) The apparatus of claim 8 wherein the core is encased in more than one layer.

12. (previously presented) The apparatus of claim 1 further comprising bone-anchoring means to which the longitudinal support can be fixed.

13. (previously presented) The apparatus of claim 1 further comprising longitudinal-support-connecting means-operative to connect at least two support sections to one another.

14. (currently amended) The apparatus of claim 13 wherein the longitudinal-support-connecting means comprise two oppositely situated support-receiving openings into each of which an end section of the support can be inserted and fixed by a clamping ~~screw or similar clamping~~ element.

15. (currently amended) The apparatus of claim 1, further comprising bone anchoring means, ~~wherein~~ the bone-anchoring means comprise longitudinal-support-receiving openings that can be spaced at variable axial distances from the opposite distal end, so that the longitudinal support can be adjusted to a correspondingly different distance from the vertebra.

16. (previously presented) The apparatus of claim 8 wherein the core is in the form of a flat band or strip with a width smaller than or equal to the corresponding dimension of the longitudinal support.

17. (previously presented) The apparatus of claim 8 wherein the core is rotationally symmetrical with either a constant diameter or a diameter that varies along the length of the longitudinal support.

18. (currently amended) The apparatus of claim 17 wherein the diameter of the core at least in sections, is ~~continually~~ enlarged or reduced ~~and/or altered~~ in a stepwise manner, the transitions of the stepwise manner in the region of a step are constructed so as to reduce stress.

19. (previously presented) The apparatus of claim 18 wherein the transitions of the stepwise manner in the region of a step are rounded to reduce stress.

20. (previously presented) The apparatus of claim 17 wherein the rotationally symmetrical core is circular.

21. (previously presented) The apparatus of claim 8 wherein the metal core comprises titanium or a titanium alloy.

22. (previously presented) The apparatus of claim 7 wherein the longitudinal support comprises a hollow rod.

23. (currently amended) The apparatus of claim 1 wherein the predetermined limits comprises an ~~the~~ elastic flexion range.

24. (new) The apparatus of claim 1, wherein the longitudinal support is elastically deflectable by a first distance when clamped at one end while in the first or second stable shape states, the first distance being between about 2 cm to about 5 cm.

25. (new) Apparatus for the stabilization of bones, the apparatus comprising: a longitudinal support member having a uniform stiffness from a first end thereof to a second end thereof, the longitudinal support member being sized and configured to engage at least two vertebrae, the longitudinal support member including a deformable core made of metal and a bio-compatible plastic member sized and configured to encase said core, the longitudinal support member being deformable

Application No. 10/542,646

Amendment filed May 2, 2007

Response to Office Action dated February 6, 2007

between a first stable state and a second stable state by application of a bending force, the longitudinal support member remaining flexible in the first and second stable states; wherein the longitudinal support is flexible in a first direction but not in a second direction.

26. (new) The apparatus of claim 25, wherein the first direction is flexion and extension.